

REMARKS

Reconsideration and allowance of the present patent application based on the foregoing amendments and following remarks are respectfully requested.

By this Amendment, claims 1, 10 and 17 are amended and claims 9 and 25 are cancelled without prejudice or disclaimer to the subject matter therein. Claims 1, 10 and 17 are amended to positively recite the features of claims 9 and 25. No new matter is added. Accordingly, after entry of this Amendment, claims 1-8, 10-24 and 26-27 will remain pending in the patent application.

As a preliminary matter, per MPEP §707.07(d), Applicants note that a plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all claims in the group. As this application contains 3 independent claims and 27 dependent claims directed to different embodiments of the invention, Applicants point out that the rejection in the Office Action is not equally applicable to claims 1-27. Therefore, the Office Action is not complete as to all matters because the Examiner has not clearly identified a ground of rejection for each rejected claim. Accordingly, in the event the rejection of some or all of the pending claims is maintained, the Examiner is respectfully requested to provide in the next Office Action specific reasons as to why each rejected claim is not patentable over the cited art. If, for example, the current rejections are maintained, Applicants respectfully submit that claims 7, 8, 16, 23-24, and 26-27 are in condition for allowance since no specific grounds for rejection have been provided.

In the Office Action, claim 10 was objected to. In response, claim 10 is amended to correct the informality noted in the Office Action. Accordingly, reconsideration and withdrawal of the objection to claim 10 are respectfully requested.

Claims 1-27 were rejected under 35 U.S.C. §102(a) based on Ishikawa *et al.* (U.S. Pub. No. 2003/0197849) (hereinafter "Ishikawa"). The rejection is respectfully traversed.

Claims 9 and 25 are cancelled without prejudice or disclaimer, thus rendering the rejection of these claims moot.

Claim 1 is patentable over Ishikawa at least because this claim recites a lithographic apparatus comprising, *inter alia*, a modulator configured to (a) modulate an attribute of the patterned beam based on a scanning speed signal, wherein the scanning speed signal indicates a scanning speed of the patterned beam relative to the substrate, and (b) begin projection of the patterned beam onto the target portion of the substrate during deceleration or acceleration

of the scanning speed. Ishikawa does not disclose, teach or suggest an apparatus including these features.

Ishikawa discloses a lithographic apparatus including a controller 50 (identified as the “modulator” by the Office Action) that adjusts the exposure amount on the substrate and the position and the velocity of the reticle stage and the wafer stage during scanning. (See paragraphs [0115] and [0142] and FIG. 1). However, unlike the invention recited by claim 1, the scanning velocity in Ishikawa is not used to modulate an attribute of the patterned beam. Ishikawa merely discloses that the exposure amount is adjusted based on the energy beam passing through the illumination system and the projection optical system, and that control of the exposure amount is independent from the control of the velocity of the reticle and wafer stages. (See FIGS. 1-2 and paragraphs [0035], [0082], [0088] and [0142]). Ishikawa states, for example, that “the main controller 50 plays both the role of an exposure controller (exposure amount control unit) and a stage controller (stage control unit). It is a matter of course that these controllers may be arranged individually, separate from the main controller 50”. (See paragraph [0117]).

Furthermore, Applicants respectfully submit that Ishikawa fails to disclose, teach or suggest a modulator that is configured to begin projection of the patterned beam onto the target portion of the substrate during deceleration or acceleration of the scanning speed. Ishikawa merely discloses that irradiation begins when the scanning speed is constant. Ishikawa states, for example, that “when both stages reach the respective target scanning velocity where the velocity ratio of both stages are synchronously isochronal (synchronous setting state), the exposure light EL is irradiated on the reticle R and scanning exposure begins on the shot area subject to exposure (initially the first shot area)”. (See paragraph [0170]). As such, Ishikawa does not disclose, teach or suggest each and every element recited by claim 1 and, as a result, cannot anticipate claim 1.

Claims 2-8 and 26-27 are patentable over Ishikawa at least by virtue of their dependency from claim 1 and for the additional features recited therein.

Claim 10 is patentable over Ishikawa for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, claim 10 is patentable over Ishikawa at least because this claim recites a device manufacturing method comprising, *inter alia*, modulating an attribute of the patterned beam based on a scanning speed of the patterned beam relative to the substrate, wherein the projecting includes projecting the patterned beam onto the target portion of the substrate during deceleration or acceleration of the scanning speed. For at least similar reasons as provided in claim 1, Ishikawa does not

disclose, teach or suggest these features. Therefore, Ishikawa does not disclose, teach or suggest each and every feature recited by claim 10 and, as a result, cannot anticipate claim 10. Claims 11-16 are patentable over Ishikawa at least by virtue of their dependency from claim 10 and for the additional features recited therein.

Claim 17 is patentable over Ishikawa for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, claim 17 is patentable over Ishikawa at least because this claim recites a lithographic apparatus comprising, *inter alia*, means for modulating an attribute of the patterned beam based on a scanning speed signal that indicates a scanning speed as the patterned beam and the substrate move relative to each other, in order to reduce sensitivity to fluctuations in the scanning speed, wherein the modulating means is further configured to begin the projection of the patterned beam onto the target portion of the substrate during deceleration or acceleration of the scanning speed signal. For at least similar reasons as provided in claim 1, Ishikawa does not disclose, teach or suggest these features. Therefore, Ishikawa does not disclose, teach or suggest each and every feature recited by claim 17 and, as a result, cannot anticipate claim 17. Claims 18-24 are patentable over Ishikawa at least by virtue of their dependency from claim 17 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-8, 10-24 and 26-27 under 35 U.S.C. §102(a) based on Ishikawa are respectfully requested.

Claims 1-27 were rejected under 35 U.S.C. §102(a) based on Imai *et al.* (U.S. Pub. No. 2003/0035090) (hereinafter "Imai"). The rejection is respectfully traversed.

Claims 9 and 25 are cancelled without prejudice or disclaimer, thus rendering the rejection of these claims moot.

Claim 1 is patentable over Ishikawa at least because this claim recites a lithographic apparatus comprising, *inter alia*, a modulator configured to begin projection of the patterned beam onto the target portion of the substrate during deceleration or acceleration of the scanning speed. Ishikawa does not disclose, teach or suggest an apparatus including these features.

Unlike the invention recited by claim 1, Imai merely discloses an apparatus that includes a control means for controlling a relative scanning speed between the mask and the substrate based on information on a distortion of a pattern on the substrate. (See paragraphs [0030]-[0034]). Imai also discloses in paragraph [0113] that the oscillation frequency of the light source is set to a value proportional to the scanning speed. However, Imai is silent as to a modulator configured to begin projection of the patterned beam onto the target portion of

the substrate during deceleration or acceleration of the scanning speed. As such, Imai does not disclose, teach or suggest each and every element recited by claim 1 and, as a result, cannot anticipate claim 1.

Claims 2-8 and 26-27 are patentable over Imai at least by virtue of their dependency from claim 1 and for the additional features recited therein.

Claim 10 is patentable over Imai for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, claim 10 is patentable over Imai at least because this claim recites a device manufacturing method comprising, *inter alia*, modulating an attribute of the patterned beam based on a scanning speed of the patterned beam relative to the substrate, wherein the projecting includes projecting the patterned beam onto the target portion of the substrate during deceleration or acceleration of the scanning speed. For at least similar reasons as provided in claim 1, Imai does not disclose, teach or suggest these features. Therefore, Ishikawa does not disclose, teach or suggest each and every feature recited by claim 10 and, as a result, cannot anticipate claim 10. Claims 11-16 are patentable over Imai at least by virtue of their dependency from claim 10 and for the additional features recited therein.

Claim 17 is patentable over Imai for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, claim 17 is patentable over Imai at least because this claim recites a lithographic apparatus comprising, *inter alia*, means for modulating an attribute of the patterned beam based on a scanning speed signal that indicates a scanning speed as the patterned beam and the substrate move relative to each other, in order to reduce sensitivity to fluctuations in the scanning speed, wherein the modulating means is further configured to begin the projection of the patterned beam onto the target portion of the substrate during deceleration or acceleration of the scanning speed signal. For at least similar reasons as provided in claim 1, Imai does not disclose, teach or suggest these features. Therefore, Imai does not disclose, teach or suggest each and every feature recited by claim 17 and, as a result, cannot anticipate claim 17. Claims 18-24 are patentable over Imai at least by virtue of their dependency from claim 17 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-8, 10-24 and 26-27 under 35 U.S.C. §102(a) based on Imai are respectfully requested.

All matters having been addressed and in view of the foregoing, Applicants respectfully request entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of all pending claims, including claims 26-27.

VAN DER BIGGELAAR ET AL. -- 10/755,666  
Client/Matter: 081468-0307562

Applicants' Counsel remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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